IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MICROBES, INC. and RHIZOGEN L.L.C. v. THE ESPOMA COMPANY, ADVANCED MICROBIAL SOLUTIONS, L.L.C. and CALLOWAY'S NURSERY, INC.	2:09-CV-237 (TJW) JURY TRIAL DEMANDED

DEFENDANTS' JOINT RESPONSIVE BRIEF ON CLAIM CONSTRUCTION

NOTES ON CITATIONS

1. The three patents asserted (U.S. Patent Nos. 6,878,179; 7,044,994 and 7,442,224) each have nearly identical specifications. The patents are attached as Exhibits Nos. 3, 4 and 5. For ease of reference, the citations in Defendants' Brief are to the specification of the '179 patent only.

2. The cited portions of the prosecution history of the patents are attached as Exhibit 6. Citations of individual pages are indicated using document identification numbers (e.g., AMS 000123).

3. The full text of the asserted claims appears in Exhibit 2 with disputed terms is highlighted.

4. Some excerpts of documents have been highlighted for emphasis. Unless otherwise indicated, highlighting has been added by Defendants and is not included in the original document.

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I. INTRODUCTION AND FACTUAL BACKGROUND

A. Overview of the Asserted Patents

Plaintiffs assert that Defendants have infringed, either directly, jointly or contributorily, three patents, specifically U.S. Patent Nos. 6,878,179 (the '179 Patent); 7,044,994 (the '994 Patent); and 7,442,224 (the '224 Patent), all entitled "Fertilizer Compositions and Methods of Making and Using Same." The '994 Patent and '224 Patents are continuations of the '179 Patent and all have the same specification.

The claims asserted as being infringed in the '179 Patent are claims 20 and 21. Plaintiffs have withdrawn allegations of infringement of claims 1-4, 8, 13, 16, and 17, leaving the only asserted claims as 20 and 21.[1] In the '994 Patent, claims 1-4, 7, 9, 14, 23, 24, and 27 are the only asserted claims after the withdrawal by Plaintiffs of claims 15, 16, 19, and 20. In the '224 Patent, the asserted claims are 12 and 14. Independent claim 20 of the '179 Patent is set out below and is representative of the asserted claims:

> **20**. A solid fertilizer composition for plant production comprised of decontaminated manure, *Bacillus* spores, humic acid and, optionally, one or more N—P—K compounds, wherein the *Bacillus* spores are from strains of probiotic *Bacillus* bacteria that enhance beneficial microbial populations within a rhizosphere of a plant.

B. The Patent Describes a Fertilizer Composition

The purported invention of the patents-in-suit is fertilizer composition that includes *decontaminated* manure and *Bacillus* spores. The decontaminated manure described by the specification is defined by the inventor as requiring certain characteristics and properties which make it suitable for use. To be suitable, the decontaminated manure must be conditioned to

[1] In Plaintiffs' footnote number 2, Plaintiffs do not identify claim 21 of the '179 Patent as being asserted. However, in a correspondence dated the same day as the brief, claim 21 was alleged as being infringed and claim 21 is also included in Exhibit 2 to Plaintiffs' Opening Claim Construction Brief.

reduce native organisms by 100 to 10,000 times (2-4 logs) so that organisms added (*Bacillus* spores) can thrive. To make this possible, non-nutritive substances such as sawdust, rice hulls, straw, litter or bedding must be removed (3:66-4:2, 9:51-9:67, 16:61-17:3). It is because of these characteristics of the decontaminated manure combined with *Bacillus* spores that the inventor discloses unexpected benefits (9:41-9:46; 16:16-17:3). It is also because of these characteristics (and the experiments detailed in the specification) that the patents-in-suit were granted.

II. ADDITIONAL AGREED CONSTRUCTIONS

After Plaintiffs filed their opening brief, Defendants have agreed to the construction of the following terms:

Term	***Stipulated Construction***
3. **wherein the decontaminated manure has a total aerobic/ facultative viable plate count reduced by 2-4 logs (100 to 10,000 times) compared to raw manure** '994: 1, 23	The "decontaminated manure" in the fertilizer composition has a "total aerobic/facultative viable plate count" that is 2-4 logs less than the "total aerobic/facultative viable plate count" of the "raw manure" used to form the "decontaminated manure."
16. **capable of enhancing beneficial microbial populations** '179: 20 '994: 7, 27	This term means capable of promoting the growth and reproduction of microorganisms that benefit a plant.
18. **beneficial microbial populations within a rhizosphere of a plant** '179: 20	This term means microorganism within the rhizosphere of a plant that benefit the plant.
21. **nitrogen effect** '224: 12	The effect of nitrogen either washed out of the soil and into the surrounding waters or released from the soil into the atmosphere.

22. **maintaining contact between the rhizosphere of the plant and the composition for a time sufficient to enhance yield of the plant while reducing nitrogen effect** '224: 12	This term means maintaining the fertilizer composition in contact with the rhizosphere of the plant for any amount of time that is enough to increase the "yield" of the plant while reducing the "nitrogen effect."
25. **effective amount** '224: 14	This term means any amount of the fertilizer composition that when introduced to the rhizosphere of the plant contributes to an increase in the concentration of either *actinomycetes* or nitrogen fixing bacteria in the rhizosphere.
26. **effective amount of a fertilizer composition** '224: 14	This term means any amount of the fertilizer composition that when introduced to the rhizosphere of a plant contributes to an increase in the concentration of either *actinomycetes* or nitrogen fixing bacteria in the rhizosphere.
27. **time sufficient to increase concentration of non-*bacillus* beneficial organisms in the rhizosphere** '224: 14	This term means any amount of time that is enough for an increase in the concentration of either *actinomycetes* or nitrogen fixing bacteria in the rhizosphere.

This list does not include the previously agreed constructions as recited in Plaintiffs' Opening Claim Construction Brief.

III. ARGUMENT AND AUTHORITIES

Claim terms "are generally given their ordinary and customary meaning." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc), quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). The ordinary and customary meaning of a claim term "is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." *Id.* at 1313. "Importantly, the person of ordinary skill in

the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification. *Id.*

To ascertain the meaning of claims, courts look to three primary sources: the claims, the specification, and the prosecution history. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995). A patent's claim must be read in light the specification in which it is a part. *Id.* The specification is always highly relevant to the claim construction analysis. *Vitronics*, 90 F.3d at 1582. This is because the specification acts as a dictionary which explains the invention and defines terms used in the claims either expressly or implicitly. *Id.; Markman*, 52 F.3d at 979.

Additionally, examination of the specification is needed to determine if the patentee has limited the scope of the claims. *Watts v. XL Sys., Inc.*, 232 F.3d 877, 882 (Fed. Cir. 2000). The specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor. *Phillips*, 415 F.3d at 1316. Such as when the preferred embodiment is described in the specification as the invention itself, the claims are not necessarily entitled to a scope broader than that embodiment. *Watts*, 232 F.3d at 882, citing *Modine Mfg. Co. v. United States Int'l Trade Comm'n*, 75 F.3d 1545, 1551 (Fed. Cir. 1996). In that instance, the inventor has dictated the correct claim scope, and the inventor's intention, as expressed in the specification, is regarded as dispositive. *Phillips*, 415 F.3d at 1316.

As stated by the Federal Circuit:

> Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claims. The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction.

Id. Therefore, it is easy to understand why, usually, the specification is dispositive and the single best guide to the meaning of a disputed term. *Vitronics,* 90 F.3d at 1582.

In addition to the specification, the court should consider the patent's prosecution history, if it is in evidence. *Markman,* 52 F.3d at 980. The prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be. *Phillips,* 415 F.3d at 1317, citing *Vitronics,* 90 F.3d at 1582-1583.

A. The Manure Terms (Disputed Terms Nos. 1-5)

Term	*Plaintiffs*	*Defendants*
1. **decontaminated manure** '179: 20 '994: 1, 4, 23 '224: 12, 14	Manure that has been treated to reduce the viable plate count of aerobic and facultative bacteria in the manure to below ten million cfu/gram but is not sterilized. Manure is sterilized if it contains no living microorganisms that can be detected in terms of "total aerobic/facultative viable plate count."	Manure that has been treated to reduce the density of live microbes by a factor of at least 2 logs (100 times), but has not been completely sterilized. *Further claim construction is required if the manure is derived from broiler chicken litter*. If the manure is derived from broiler chickens, the manure must be treated to be free from straw or other forms of litter or bedding.
2. **raw manure** '994: 1, 23	The manure that is treated to make the "decontaminated manure" in the fertilizer composition, before such manure undergoes treatment to reduce its "total aerobic/facultative viable plate count."	Raw manure is fresh manure that has not been decontaminated. Raw manure can have between 1-10 billion live microbes per gram.

3. **wherein the decontaminated manure has a total aerobic/ facultative viable plate count reduced by 2-4 logs (100 to 10,000 times) compared to raw manure** '994: 1, 23	The "decontaminated manure" in the fertilizer composition has a "total aerobic/facultative viable plate count" that is 2-4 logs less than the "total aerobic/facultative viable plate count" of the "raw manure" used to form the "decontaminated manure."	Defendants accept the Plaintiffs' proposed construction of this term.
4. **total aerobic/ facultative viable plate count** '994: 1, 23	A measurement, expressed in cfu/gram, resulting from counting the total number of colony forming units of both aerobic bacteria and facultative bacteria that have grown on a medium of tryptic soy agar after about 3 days (72 hours) of incubation at 32 C.	This is part of term 3 above and should be construed consistently with term 3. Defendants agree with the definition of "plate count" as being a measurement of colony forming units per gram of fertilizer, but the specific procedure for measurement should not be part of the claim construction. Other growth medium and incubation times and temperatures can produce the same result in plate count, and other evidence can be used to prove the degree of reduction.
5. **decontaminated manure and *Bacillus* spores wherein the decontaminated manure has a total aerobic/facultative viable plate count reduced by 2-4 logs (100 to 10,000 times) compared to raw manure** '994: 1	No construction is required. In the alternative, this term means "decontaminated manure" and "*Bacillus* spores," present in a fertilizer composition, "wherein the decontaminated manure" in the fertilizer composition has a "total aerobic/facultative viable plate count" that is 2-4 logs less than the "total aerobic/facultative viable plate count" of the "raw manure" used to form the "decontaminated manure."	Defendants accept Plaintiffs' contention that no further construction is required in that the manure terms will be construed in accordance with the preceding contentions and "*Bacillus* spores" will be construed in accordance with the next section.

1. Summary of the Issues.

Although these terms are broken into segments for discussion, they are all related to the manure component in the fertilizer.

The primary, and potentially dispositive, issue is whether the construction of the manure component should include the instruction that if the manure is from broiler chickens, it must be treated to free it from the bedding and litter into which it is mixed. Espoma buys all of its fertilizer from a plant that processes the litter from broiler chicken pens into dry fertilizer. The claim construction issue is whether the Plaintiffs have a burden of proving that the manure must have been freed from this litter to use it in the fertilizer. Defendants contend that there is an unambiguous statement and clear intent expressed in the patent specification for this construction.

A secondary issue is whether the 2-4 log reduction term is part of the definition of decontaminated manure, as opposed to a separate limitation defining a specific range of decontamination in some claims and not others. Defendants contend that the patentee included this range as part of the definition of "decontaminated manure," and that it applies in all of the claims under the term decontaminated manure.

A third issue is the microbial content of the raw manure. Although there is a conceptual difference between fresh and raw manure, the specification and file history treat them as having essentially the same magnitude of microbial content. This construction is important to make the 2-4 log reduction a definite term, since without a starting point the 2-4 log reduction becomes indefinite.

A fourth issue is about plate count. The issue regarding plate count is not about what it determines, but rather that the specific method recited as an example of how to determine plate count should not be included in the definition. Defendants have evidence of prior art fertilizer

from chicken manure and the processes used to decontaminate the raw manure. Defendants do not have samples on which to perform the specific test in the specification, but can rely upon other documents and expert testimony to show that the decontamination process must have reduced the plate count to this level.

2. Evidence and Argument

The term "decontaminated manure" appears in every asserted claim. Its meaning and scope should be determined primarily by the rule that a patentee is entitled to be his own lexicographer, as that is what this inventor has purposely done. When a patentee gives a specific limitation to a claim term in the specification and/or prosecution history, that information should be used in defining the scope of the claim. *Phillips*, 414 F.3d at 1315. (The words of patent claims have the meaning and scope with which they are used in the specification and the prosecution history.)

Without the inventor's specific definitions given in the specification and file history, the term "decontaminated manure" would have been understood by one of ordinary skill in the art to mean that the manure has been cleansed of pathogenic contaminants in order to make it safe to use on food crops. To this ordinary meaning, the patentee has used his own definitions to engraft three specific conditions: (a) the manure must come from chicken or swine; (b) the manure must have a total microbial plate count per gram reduced by 2-4 logs (100 to 10,000) compared with fresh, untreated (raw) manure, and (c) if the manure comes from broiler chickens, it must be rendered free of litter or bedding.

a. Manure from chicken or swine produced without bedding or litter.

The first set of specific definitions by the patentee is contained in column 9 under the heading of "Manure Treatment." The inventor starts this section by describing that

> One of the critical discoveries of the present invention involves the unique application of animal manure in potentiating the effect of the *Bacillus* microorganisms; specifically, chicken or swine manure, produced without litter or bedding, and produced from animals not receiving growth-promoting antibiotics in their feed.

(9:28-33.)

This sentence gives the reader a clear indication that not all animal manures potentiate the effect of *Bacillus* well enough that it can be used in the invention. Chicken or swine manure, produced without litter or bedding, is identified as being suitable for use in the invention (provided they were not fed growth-promoting antibiotics), but other manures are either not useable or need some type of remediation to make them useful.

b. Manure must have a total microbial plate count per gram reduced by 2-4 logs (100 to 10,000) compared with fresh, untreated (raw) manure.

The inventor does more than identify which manures can be used. He describes that the manure must be treated to significantly reduce the living microorganisms in it, and he explains why this must be done. The inventor uses the example of chicken manure, which he describes as being rich in the NPK elements and in the organic compounds that serve as microbial nutrients. The problem with using fresh chicken manure, as the inventor describes, is that it contains over one billion (1 x 10^9) live microorganisms – and drying it at 65° C only reduces the live organism count by approximately one-half. (9: 37-41.) The inventor is adamant that even this reduced amount is too high to be used.

> Such manure, nutrient content not-withstanding, cannot be used in the present invention. Manure with high concentrations of microorganisms will grossly contaminate the fertilizer formulations of this invention and result in poor growth of probiotic, *Bacillus* microorganisms in the rhizosphere.

(9:41-46.)

The inventor refers to Experiment #3 in the specification to illustrate his point. He summarizes the results of this experiment in terms of the relative level of growth of a specific strain, *B. laterosporus* (ATCC PTA-3593), which he says grew to almost 10^8 units in a liquid solution containing 1% of sterile chicken manure, but only grew to less than 10^5 units in a similar solution of 1% raw chicken manure.[2]

Following his explanation of why manure with high concentrations of microorganisms cannot be used, the inventor goes on to describe how manure can be treated to be useful in the invention.

> The present invention requires substantially dry manure, moisture content preferably less than 20 weight percent, preferably less than 15 weight percent, chicken or swine origin, that has a microbial plate count below ten million or 1×10^7 cfu/gram (aerobic/facultative: total plate count on tryptic soy agar, 3 days, 32° C.), preferably below one million or 1×10^6 cfu/gram. This represents a 100 to 1,000 fold reduction, two-three logs, compared to the total count in fresh manure.

(9:51-59.)

From the above passage, it is clear that the inventor intended the term "decontaminated" to be used as a definition of the minimum level of microbial reduction needed to make manure suitable for use in his invention. The specification goes further, stating:

> For lack of definitive terminology this inventor will use the term "decontaminated manure" for manure that has a reduced viable plate count according to the specifications stated above.

(9:63-67.)

[2] Experiment 3 is described in detail at columns 12 and 13. It differs significantly from the summary the inventor made above. Two other *Bacillus* strains (not ATCC PTA-3953) are described in the purported experiment, and the test involved liquid solutions containing raw, decontaminated and sterilized manure from layer chickens. The results in table 4 indicate that the bacteria grew best in the sterile manure solution. Defendants believe the evidence will show that this and other experiments in the patents were never done, and that the data was instead derived from testing of the BioStart prior art liquid fertilizer and altered when presented to the Patent Office during prosecution.

Note in particular that his above definition does not exclude the use of sterilized manure – which would meet the preferred microbial reduction of below 1000 fold. The patent specification does not resolve this ambiguity. While the specification recognizes a distinction between sterilized manure and decontaminated manure in Experiment 3, the inventor describes Experiment 3 as showing evidence that the *Bacillus* grows better in the sterilized manure solution than in raw manure, and summarizes Experiment 3 by stating:

> This data provides evidence that Bacilli grow well in chicken manure if it is sterilized or decontaminated

(12:64-65.)

Thus, the specification does not clarify whether the patentee's definition of decontaminated manure includes sterilized manure. That clarification comes instead from the prosecution history.

Claim 1 of the original application recites:

> 1. A fertilizer composition comprised of decontaminated manure and *Bacillus* spores. (Ex. 6, Amendment, p. 10, AMS 000133.)

In a response dated October 14, 2004, the patentee's attorney amended Claim 1 by adding

> wherein the decontaminated manure has a total aerobic/faculative viable plate count reduced by two to four logs (100 to 10,000 times) compared to raw manure. *Id.*

This specific range is found in the patent specification at 5:16-20, and is what the inventor describes therein as a "substantially decontaminated manure." The patentee's attorney explained that the purpose of the amendment was to define the meaning of decontaminated manure as a range of microbial reduction, stating that

> As used in the invention "decontaminated" means that the animal manure has a total microbial plate count per gram reduced by 2-4 logs (100 to 10,000) compared with fresh, untreated (raw) manure. (Ex. 6, Amendment, pp. 14-15, AMS 000137-AMS 000138.)

Note that the attorney did not say he was narrowing the claim from "decontaminated manure" to "decontaminated manure in the range of a 2-4 log reduction." Instead he defines what the term "decontaminated manure" means whenever it is used in the claims. This is an important aspect of this claim construction, since some of the asserted claims only recite "decontaminated manure." Considering his explanation that the 2-4 log reduction is part of the definition of decontaminated manure, and the fact that without this definition decontaminated manure would encompass sterilized manure, it is clear that the 2-4 log reduction must apply even to those claims where only decontaminated manure is recited. The fact that some other claims specifically recite the 2-4 log reduction does not make it a separate limitation. The doctrine of claim differentiation cannot overcome a clear definition of a claim term. *See, Edwards Lifesciences LLC v. Cook Inc.,* 582 F.3d 1322, 1330 (Fed. Cir. 2009).

It is also important to note that the claim amendment makes the 2-4 log reduction in comparison to "raw" manure. The attorney used "raw" in parentheses as he describes the log reduction as being 2-4 logs in comparison to fresh, untreated (raw) manure. (Ex. 6, Amendment, pp. 14-15, AMS 000137-AMS 00138). Equating the level of microbial count in fresh manure and raw manure is the only way to make the claim element definite. The specification gives a definite starting range of viable microorganisms in fresh manure of between 1-10 billion per gram (1:46-58), and states that fresh layer chicken manure has a microbial count of over one billion (10^9) cfu/gram. (9:37-39.) It does not anywhere state a different microbial count for raw manure. Hence, while there may be a semantic difference between fresh and raw manure, the plate count of both of them must be around the 10^9 range in order for the claim limitation to be definite. This reduction range can then be expressed as a straight numerical value of cfu per gram plate count. If untreated (raw) chicken manure has a starting plate count of over one billion

(10^9) cfu/gram, the 2-4 log reduction then becomes a plate count in the range of 10^7 to 10^5 cfu/gram, and becomes a definite claim term.

The definiteness of the 2-4 reduction is important because the chicken manure used in the Espoma fertilizer is from broiler chickens. The difference between broiler and layer chicken manure would be apparent to one skilled in the art, and is described in adequate detail in the specification. Layer hens are housed in cages with wire mesh bottoms, so that the feces fall through the mesh onto a floor. The floors are flushed frequently to gather relatively fresh manure containing little debris. By contrast, broiler chickens are raised in pens containing bedding made of straw, sawdust, wood chips, paper or other fibrous materials, and the same bedding is used over and over to raise numerous flocks before the bedding is swept out and replaced, often a year or more between cleaning. The chicken manure is mixed throughout the bedding, along with feed waste, feathers and other debris. This litter decomposes in the chicken houses, resulting in a partially composted mass when it is removed. The manure in the litter can range in vintage from a relatively few days to well over a year. Unless the 10^9 starting point identified in the specification is used, the claim element of a 2-4 log reduction is indefinite - as no one would be able to determine what the plate count was in the manure mixed into the composted litter.

c. If the manure comes from broiler chickens, it must be rendered free of undesirable litter or bedding.

The final limitation from the patentee's own lexicography starts with his statement that one of his "critical discoveries" was the unique application of chicken or swine manure, produced *without litter or bedding* to facilitate *Bacillus* growth. He also explains to the reader exactly why broiler chicken litter is not suited to be used in the invention without further processing that goes beyond mere reduction in microbial plate count.

> Manure from ruminant animals such as cattle and sheep, or from broiler chickens, is not generally useful for the purpose of the present invention because it usually contains a high percentage of non-nutritive substances such as sawdust, rice hulls, straw or other forms of litter and bedding.

(16:61-66.)

In describing the prior art, the inventor also disparaged an earlier poultry fertilizer for essentially the same reason - it contained cellulose material (such as bedding or litter).

> U.S. Pat. No. 6,312,492, Wilson, discloses improved fertilizer effect of poultry manure by adding sulfuric acid followed by drying. Wilson teaches specifically the co-addition of cellulose containing materials. These would decrease the effectiveness of decontaminated manure in my invention as they would not feed the *Bacillus* microorganisms and would take up valuable space in the product.

(*emphasis added)* (2:11-17.)

After this clear explanation that broiler chicken litter is not generally useful and why, the patentee describes how it could be used in the invention, stating that:

> . The art and science of the present invention does not rule out the use of these manure types if they can be obtained free of undesirable substances and rendered below 1x10^7 cfu/gram with respect to total, viable, aerobic/facultative microorganisms.

(*emphasis added*) (16:66-17:3.)

This is a clear statement that reduction of microbial count alone is not sufficient treatment when using broiler chicken manure, additional processing is required in order to make the manure free of the undesirable litter. This additional processing requirement must be included in the construction of decontaminated manure when it is derived from broiler chicken litter. *"A construction that stays true to the claim language and most naturally aligns with the patent's*

description of the invention will be, in the end, the correct construction." *Phillips*, 415 F.3d at 1316.

Plaintiffs concede that a patentee as lexicographer can define, disclaim, disavow or otherwise condition the scope of a claim term when he uses words or actions demonstrating that intent, but they argue that the words and actions used by this inventor were ambiguous. (Plaintiffs' Brief, pp. 5-7.) The cases cited by Plaintiffs' Brief at page 6 for the premise that an ambiguous disavowal of claim scope should be treated as a disclaimer do not apply, however, when the inventor's statements are as clear as in this case.[3]

Here, the inventor's statements about broiler chicken litter are not ambiguous in the least. He has disclaimed broiler chicken manure that has not been made free of litter or bedding by stating it as clearly as possible.

> Manure from ruminant animals such as cattle and sheep, or from broiler chickens, is not generally useful for the purpose of the present invention because it usually contains a high percentage of non-nutritive substances such as sawdust, rice hulls, straw or other forms of litter and bedding. The art and science of the present invention does not rule out the use of these manure types if they can be obtained free of undesirable substances and rendered below 1×10^7 cfu/gram with respect to total, viable, aerobic/ facultative microorganisms.

(*emphasis added*) (16:61-17:3.)

There is no ambiguity about what undesirable substances must be removed from the broiler chicken manure – it is the litter or bedding mixed into the manure.

The more persuasive precedent is *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337 (Fed. Cir. 2002). "Where the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside of the reach

[3] Plaintiffs' Brief does not identify any particular ambiguity.

of the claims of the patent, even though the language of the claims, read without reference to the specification, might be construed broad enough to encompass the feature in question." *Id*. at 1341. *SciMed* affirmed the district court's construction that the patentee had clearly limited the claims to catheters using coaxial lumens, and had effectively disclaimed dual or side-by side lumens. The patent specification had specifically discussed dual lumen catheters and their disadvantages compared to coaxial catheters, and stated that the coaxial structure was the basic structure for all of the embodiments of the invention. *Id*. at 1344. In this case, the specification identifies broiler chicken manure and its disadvantages, describes the use of chicken manure that is free from litter or bedding as a "*critical discovery*," and then states unequivocally that broiler chicken manure can *only be used* if it is made free of bedding and other litter.

The patentee's statements regarding broiler chicken litter are remarkably similar to those described in the Memorandum Opinion and Order of Magistrate Judge Craven in *Cies Bisker, LLC v. 3M Company*, No. 2:08-CV-115 (E.D. Texas Nov. 25, 2009), Document 137. *See*, Ex. 8. In construing the claim elements "photographic print" and "graphic print," the Court noted that the specification consistently emphasized the superiority of prints developed from negatives over prints made by ink printing, including his statement that.... "Because of its lower quality images and higher cost, ink printed images are not a viable alternative for the photographic tiles of the present invention." *Id*. at 12. Rejecting the patentee's argument that this was only a disavowal of low quality and expensive ink printing, and not of all ink printing, the Court followed and cited *SciMed*, holding that the patentee's criticism of ink printing "far exceeds the threshold test propounded by the Federal Circuit" for a clear disavowal. *Id*. at 14.

B. The *Bacillus* Spore Terms (Disputed Terms Nos. 6 and 7)

Term	*Plaintiffs*	*Defendants*
6. ***Bacillus* spores** '179: 20 '994: 1, 4, 7, 23, 27 '224: 12, 14	The *Bacillus* bacteria present in the fertilizer composition are predominantly in spore form and not vegetative form.	The bacteria of the *Bacillus* genus which are in "spore" form, which is a common shortened form of the term "endospore."
7. **present in sufficient concentration to effect a viable spore count of between 10^6 cfu to 10^9 cfu per gram of dry composition** '179: 1 '994: 14, 23	The "*Bacillus* spores" in a dry fertilizer composition are present in an amount such that measurement according to the spore count procedure in the patent results in a viable spore count between 10^6and 10^9 colony forming units (cfu) per gram of the dry fertilizer composition. The spore count procedure in the patent includes adding distilled water to a sample of the dry fertilizer composition, heating a sample of the dry fertilizer composition for 10 minutes at 80° C to kill non-spore forming bacteria and then incubating the sample aerobically for 48 hours to recover only *Bacillus* spores. *Bacillus* spore counts are a measurement resulting from counting the total number of colony forming units of the *Bacillus* bacteria that have grown on a medium of tryptic soy agar after about 3 days (72 hours) of incubation at 32º C. The resulting spore count (in cfu's) is then divided by the weight (in grams) of the original fertilizer sample.	This limitation applies to the concentration of the *Bacillus* spores when the fertilizer is a dry composition. The fertilizer must include enough spores that are capable of germinating back into *Bacillus* bacteria to create between 10^6 to 10^9 colony forming units per gram of fertilizer. A colony forming unit is a live reproducing bacteria.

1. *Bacillus* Spores (Disputed Terms Nos. 6 and 7)

The parties agree that *Bacillus* is the taxonomical name for a genus of bacteria. Plaintiffs do not object to Defendants' proposed definition of the spore form of *Bacillus* and how the spore is related to the vegetative (reproductive) form. Instead, Plaintiffs ask the Court to construe the term "*Bacillus* spores" to include a limitation on the fertilizer composition itself, specifically that the *Bacillus* in the fertilizer composition must be "predominantly in spore form and not vegetative form."[4] Thus, the dispute is whether the term "*Bacillus* spores" by itself should imply that the fertilizer does not also contain a substantial amount of vegetative *Bacillus*.

There is no reason to graft this limitation of the fertilizer composition onto the construction of *Bacillus* spore. No such limitation is found or implied in the claim language or in the specification. To the contrary, a person of ordinary skill would understand that the *Bacillus* bacteria is not beneficial to the plant except in its vegetative state. When *Bacillus* spores are added to decontaminated manure, the manure acts as a food source for spores to germinate back into vegetative form and reproduce. Until the spores germinate, however, they do not benefit the plant.

A dry fertilizer composition is merely one embodiment of the invention. The fertilizer can also be in the form of slurries, liquids and solids.

> A major aspect of the present invention involves the production of fertilizer products in forms selected from the group consisting of slurries, liquids, and solid forms.

(7:19-21.)

[4] This is an issue impacting validity and inequitable conduct. More than a year prior to the December 31, 2001 filing date, the inventor and his distributor sold concentrates of *Bacillus* spores under the trade name BioStart. The distributor mixed BioStart concentrates with liquid chicken manure in a digestive process to decontaminate the manure for use as a fertilizer. This liquid fertilizer, sold under the name Nature's Solution, was rich in vegetative *Bacillus*. Prior to field application The Nature's Solution fertilizer was mixed with additional BioStart spore concentrates. Consequently, the Nature's Solution/BioStart mixture was a fertilizer composition containing substantial quantities of both vegetative and spore *Bacillus* in chicken manure.

> Preferred methods of the present invention are those wherein the *Bacillus* spores are prepared in water suspension prior to step (b) and then added to the (preferably dry) ingredients of step (a) in the liquid suspension.

(5:21-24.) Experiment 4 is described as having been done with chicken manure fertilizer that is in slurry form. (13:16-34.)

In a slurry or liquid fertilizer composition, large colonies of vegetative *Bacillus* can be present and growing in the decontaminated manure fertilizer before additional *Bacillus* spores are mixed into it in preparation to be applied to the fields. In that situation, the *Bacillus* spores may not outnumber the colonies of vegetative *Bacillus*. Consequently, there is no reason to limit the term "*Bacillus* spores."

Plaintiffs' request for the improper limitation of "predominantly in spore form" is a transparent attempt to distinguish the prior art liquid fertilizer sold by the inventor and his distributor. It should be denied. The limitation merely means that the composition contains spores, without any comparison to vegetative bacteria.

2. Present in sufficient concentration to effect a viable spore count of between 10^6 cfu to 10^9 cfu per gram of dry composition

This limitation is found in dependant claim 14 of the '994 patent. The parties agree that the limitation applies only to a dry fertilizer composition, and they also agree on the definition of dry composition as being a – "fertilizer composition with moisture content less than 20 weight percent."

This limitation specifies a required concentration of effective *Bacillus* spores that must be present in the dry fertilizer composition. It is not expressed as a range of the number of spores, however, but rather as a numerical range of the viable spores, and it is determined by counting the density of colony forming units (cfu/gram) that the viable spores have produced. This

distinction is made because not all spores in the fertilizer will germinate and reproduce – only the "viable" spores will do so. If one million (10^6) spores per gram were present in the fertilizer and only 20% were viable (able to germinate and reproduce), there would only be on the order of 200,000 cfu per gram in the plate count.

The procedure described in Plaintiffs' proposed construction is an acceptable procedure for determining the number of colony forming units that are created by the viable *Bacillus* spores in the fertilizer, but it is not part of the claim. As with the similar plate counting in manure, other types of growth media and different incubation time and temperatures can be used, and still give a statistically equal result.

Plaintiffs' reliance on *Vizio, Inv. V. Int'l Trade Comm'n,* 605 F.3d 1330, 1337 (Fed. Cir. 2010) is misplaced. The Court actually considered what examples were known in the art at the time the application was filed, not only the examples referenced in the specification. More specifically, the Court relied not only on references in the specification to reach the determination that the MPEG-2 standard was the MPEG standard but also on the "fact that the MPEG-2 standard was the standard used for digital television broadcasts in the United States at the time of the filing of the patent itself suggests that one of ordinary skill in the art would understand the disputed terms of the '074 patent to refer to the MPEG-2 standard." *Id.* In our case, one of ordinary skill in the art at the time the invention was made would have understood that many different methods to calculate plate counts existed without the need to resort to a specific test. The example in the specification is but one test of many. Therefore, a construction requiring a specific test is inappropriate.

Similarly, reliance on *Chimie v. PPG Indus., Inc.,* 402 F.3d 1371, 1378 (Fed. Cir. 2005) is also misplaced. The Court incorporated a specific test, not only because it was referenced in

the specification, but also because it reconciled ambiguous claim language of the inventor's disclosure. *Id.* However, very differently here, the claim language is not ambiguous. Therefore, the importation of the specific test(s) into the claim language is unnecessary and incorrect.

C. Additional Ingredients (Disputed Terms Nos. 12, 13, and 19)

Term	*Plaintiffs*	*Defendants*
12. **humic acid** '179: 20 '994: 2, 4, 23	A mixture of polymers containing aromatic and heterocyclic structures, carboxyl groups, and nitrogen. Humic acid typically contains the brownish-black pigment melanin, and can be obtained from lignite. It is soluble in bases, but insoluble in mineral acids and alcohols. The term "humic acid" also includes humates, which are humic acid salts. The term "humic acid" does not include humus.	Humic acid is an acid that is naturally produced during the decomposition of organic matter. It is commonly used to promote plant growth.
13. **additive** '994: 3, 4	Something that has been added to the manure to form the fertilizer.	No construction is needed.
19. **complete fertilizer** '179: 21 '994: 24	A fertilizer composition that has at least decontaminated manure, *Bacillus* spores and N-P-K compounds.	A fertilizer composition that has at least decontaminated manure, *Bacillus* spores, humic acid, and each of the N-P-K compounds.

With respect to the term "humic acid" (term no. 12), Defendants offer a construction that is clear and synthesizes the references in the specification without the extraneous terms in the chemical dictionary definition.

The specification (reproduced below) sets out a definition of "humic acid" as presented in Hawley's Condensed Chemical Dictionary, as follows:

> As used herein, "humic acid" means a polymeric compound typically containing the brownish-black pigment melanin, and can be obtained from lignite. It is soluble in bases, but insoluble in mineral acids and alcohols. It is not a well-defined compound, but a mixture of polymers containing aromatic and heterocyclic strictures, carboxyl groups, and nitrogen, and is used in drilling fluids, printing inks, and plant growth. See Hawley's Condensed Chemical Dictionary, 12th Edition, (1993), page 608.

(*emphasis added*) (4:5-15.) The definition points out that humic acid is "*soluble in bases*" but "*insoluble* in *mineral acids and alcohols*" and "*used in … plant growth.*"

The definition clearly excludes mention of a salt of any kind as meeting the requirements of an acid. And reasonably so, salts are not soluble in bases but are soluble in acids such as mineral acid. Therefore, salts are specifically excluded from the definition by the inventor.

The inventor clearly understood the difference between an acid and a salt, and the specification reflects this difference. For example, the inventor identifies that humic acid can be derived from various sources as follows:

> Addition of humic acid derived from oxidized lignite, or leonardite, is particularly effective as a hardening agent for the purpose of the present invention.

(10:62-64.)

The inventor goes on to distinguish humic acid from the salt of potassium humate:

> Potassium humate derived from oxidized lignite is also effective.

(10:64-65.) Clearly, the inventor understood that potassium humate was not the same as humic acid and did not intent to include it in the definition of a "humic acid."

The inventor also understood and listed substances in the specification which included the required properties of a "humic acid" but are not humic acids. The inventor refers to these substances as "humic acid ingredients" or "humic acid substances." For example, the specification points out that the "humic acid ingredients" of the present invention act to promote

hardness. (17:19-20.) Examples are provided such as lignite, oxidized lignite and leonardite. (17:21.) The specification goes on to describe that the quantity of the "humic acid substance" that is required for the present invention … can vary depending on formulation. (17:31-35.) Oxidized lignite, from which humic acid is derived (19:65, 21:27, 22:52) is a "humic acid substance" that provides a humic acid, but is not a humic acid itself.

In Experiment No. 7, the inventor makes clear that "humic acids" can come from various sources. Different *sources* of humic acid are suggested here, not different *types* of humic acid. For example, under the heading of "humic acids tested," the inventor lists two items which are clearly not humic acids, sphagnum peat moss and potassium humate, but from which humic acid may be derived. (15:57-65.)

The inventor also knew and set out substances which are not humic acids. For example, sodium bentonite is identified as a non-humic acid. (16:3-4.) The inventor is aware of and mentions other non-humic acid substitutes such as lignosulfonates (11:2) which are used to harden concrete. Both substances are not acids and not soluble in a base. Such substances are excluded from the inventor's definition because they do not fit the definition of an acid. Similarly, a salt, such as a humate, is a not acid and is not soluble in a base and hence is excluded from the definition.

Dr. Kloepper testified that a person of reasonable skill would understand the difference between a salt and an acid and would understand the two would not be the same, as follows:

> Question: Now, based on how humates are described, including potassium humate in a patent, would you include humates as humic acid?
>
> Answer: Well, the humate would be the salt form, so it's technically not an acid, but I would include them in humic substances is the way – the categories I've usually seen. So it's

> obviously very much related to humic acid, but it's not in acid form. (Kloepper Dep. Tr. 155:12-21.)

In our case, the inventor knew the difference between a humic acid (acid), a humate (salt) and a humic acid substance (both). But he claimed *only a humic acid* in the asserted claims. Those claims now should not be expanded by an over inclusive construction of the term humic acid to improperly include a salt, such as humate.

Plaintiffs' construction of the term "humic acid" is strained and is incorrect for at least two reasons.

Firstly, Plaintiffs' construction is contrary to the common understanding of the word "acid." "Acid" is not generally understood to mean "salt." There is no definition in the specification to support such a clear change in meaning. Since the inventor did not act as his own lexicographer to change the definition of the term "humic acid," the common meaning should apply.

Secondly, Plaintiffs close crop the inventor's definition to exclude things that are harmful to their case and include things which are helpful.

For example, Plaintiffs exclude from the definition that the humic acid must be soluble in a base but insoluble in an acid. Since a salt such as humate is soluble in acids, Plaintiffs' improper construction includes salts in the definition where no such intent was expressed by the inventor. The reason for Plaintiffs' proposed construction is to improperly enable Plaintiffs' infringement argument that Defendants' product infringes because it includes a humate salt but not a humic acid.

As another example, Plaintiffs exclude that a use of humic acids is for "plant growth." Humic acids and humic acid substances include things like humus and peat moss (as exemplified by Experiment No. 7, 15:48-16:27) which promote plant growth.

Dr. Kloepper testifies and humic acid substances are used for plant growth as follows:

> Question: So humus, humic acid, are those different things?
>
> Answer: There are different by some ways of clustering these. I have read where people clump humus together in the general category of humic substances and include humic acid as another of the humic substances. But in the general usage of the way that like soils by science 101 is taught usually is humus is the actual, more recently decaying organic material. That's the stuff that gardeners want to put in their garden to have nice sumpy soil. Humic acid is more of a specific compound. (Kloepper Dep. Tr. 149:21-150:9.)

Of course, the reason for Plaintiffs' construction that strangely excludes humus is to exclude prior art which Defendants believe clearly shows that humus (and the humic acid that it contains) was known in a fertilizer composition with decontaminated manure long before the patents-in-suit were filed.

Since salts are excluded from the definition of humic acid provided by the inventor, then the humates should be excluded from the construction of the term as well. However, since humus includes humic acid, humus should not be artificially excluded from the construction of the term "humic acid."

With respect to the term "additive" (term no. 13), Defendants agree that the common and ordinary meaning of the term "something that is added" should control. Defendants further agree that the term "additive" is used consistently in the specification. For example, the specification at 17:36 discusses "addition of conventional N-P-K ingredients to formulations of the present invention. Again at 17:65 the specification discusses the total amount of the N-P-K ingredients added to a particular formulation… In these two cases, as in the remainder of the specification, an "additive" means "something that is added."

However, Plaintiffs' construction is still incorrect.

Referring to the '994 patent, Claim 3 requires an additive selected from the group consisting of N compounds, P compounds, K compounds and combinations thereof. However, Claim 3 depends from Claim 2, which depends from Claim 1. *See*, Exhibit 4. Therefore, the "fertilizer composition" of Claim 3 includes decontaminated manure and *Bacillus* spores (from Claim 1), and humic acid (from Claim 2), not "manure" alone, as suggested by Plaintiffs. Plaintiffs' construction improperly omits the limitations that the "manure" must be decontaminated and that the fertilizer compositions include humic acid and *Bacillus* spores. Plaintiffs' construction broadens the claim improperly and therefore is an incorrect construction.

With respect to the term "complete fertilizer" (term no. 19), Defendants' proposed construction affords each claim term a meaning which is consistent to the specification. However, Plaintiffs' proposed construction impermissibly broadens certain dependent claims and reads limitations out of the claims from which they depend. *See*, 35 U.S.C. §112 and *Monsanto Co. v. Syngeta Seeds*, 503 F.3d 1352, 1357 (Fed. Cir. 2007).

The specification uses the term "complete fertilizer" to mean a fertilizer made up of conventional N-P-K ingredients and formulations of the "present invention." (17:36-40.) The inventor, with this language, intended to include all three of nitrogen, potassium and phosphorus as ingredients of a "complete fertilizer." The inventor also intended to include humic acid as a part of a "complete fertilizer." The specification specifically identifies humic acid as part of a "complete fertilizer." (10:66-67.)

In the '179 Patent, the term "complete fertilizer" is found in claim 21, which depends from claim 20. Claim 20 requires a solid fertilizer composition which includes decontaminated manure, *Bacillus* spores, humic acid and, *optionally*, one or more N-P-K compounds.[5] By using the phrase "one or more N-P-K compounds" the inventor intended to exclude, in one or more

[5] Claims 23 and 24 of the '994 Patent include similar language.

embodiments, one or more of the N, P, or K compounds. However, in claim 21, by adding the term "complete fertilizer" to the limitations of claim 20, the inventor intended to require that *all* of the N, P, and K compounds be included. Therefore, the term "complete fertilizer" should be construed to mean a fertilizer composition that has at least decontaminated manure, *Bacillus* spores, humic acid and *each* of the N, P, and K compounds.

Plaintiffs argue that the term "complete fertilizer" should be construed to allow the claim to cover a "liquid fertilizer." This argument clearly is incorrect. Claim 20, in its first four words, requires "a solid fertilizer composition…" Because claim 21 depends from claim 20, it cannot broaden claim 20 to include a liquid fertilizer when claim 20 clearly requires a solid constituent.

Plaintiffs claim construction is also in error because it impermissibly broadens claim 20 to exclude humic acid. The limitation of humic acid is specifically spelled out in claim 20 and should not be removed by an improper construction of the term "complete fertilizer" in claim 21.

D. The Probiotic Terms (Disputed Terms Nos. 14, 15, and 17)

Term	*Plaintiffs*	*Defendants*
14. **probiotic *Bacillus* bacteria** '179: 20 '994: 7, 27	This term means *Bacillus* bacteria that are capable of benefitting a plant when introduced to the soil close to the plant.	*Bacillus* bacteria that increase yield or reduce nitrogen requirements of agricultural plants.
15. **probiotic *Bacillus* bacteria capable of enhancing beneficial microbial populations within a rhizosphere of a plant** '994: 7	This term means "probiotic *Bacillus* bacteria" (defined) that are capable of promoting growth and reproduction of microorganisms within the "rhizosphere" of a plant, such that the microorganisms benefit the plant.	Agree to the extent that the definition is different from claim term 14 "probiotic *Bacillus* bacteria.
17. **probiotic *Bacillus* bacteria capable of**	This term means "probiotic *Bacillus* bacteria" (defined)	Agree to the extent that the definition is different from

enhancing beneficial microbial populations within a rhizosphere of a plant '994: 27	that are capable of promoting the growth and reproduction of microorganisms with the "rhizosphere" of a plant, such that the microbial organisms benefit the plant.	claim term 14 "probiotic *Bacillus* bacteria.

Defendants' proposed construction of probiotic *Bacillus* bacteria (term no. 14) is supported by the law and the specification. In contrast, Plaintiffs' proposed construction improperly broadens the claim beyond the support provided in the specification.

When the inventor has dictated the claim scope in the specification, the inventor's intention is dispositive. *Phillips*, 415 F.3d at 1316. Further, when the preferred embodiment is described in the specification as *the invention* itself, the claims are not necessarily entitled to a scope broader than that embodiment. *Edward*, 582 F.3d at 1330; *see also, SciMed*, 242 F.3d at 1343, and *Inpro II Licensing, S.A.R.L. v. T-Mobile USA, Inc.*, 450 F.3d 1350, 1354-1355 (Fed. Cir. 2006).

The inventor defined the term "probiotic *Bacillus* bacteria" in the specification as follows:

> More specifically, the invention concerns compositions comprising at least one species of probiotic *Bacillus* bacteria that exert a positive effect on the yield of agricultural plants and/or reduce the nitrogen requirements of agricultural plants, and animal manure that has been decontaminated to reduce the concentration of undesirable microorganisms.

(*emphasis added*) (3:38-41.) By describing his "invention," the inventor unmistakably indicates that his invention includes "probiotic *Bacillus* bacteria" which demonstrate the properties of "a positive effect on the yield of agricultural plants" and/or a reduction in the "nitrogen requirements of agricultural plants."

The inventor's definition of "probiotic *Bacillus* bacteria" is consistent with other references in the specification. For example, the requirements of a "probiotic *Bacillus* species" are set out as follows:

> A further aspect of the present invention is the discovery that certain probiotic *Bacillus* species cause an increase in numbers of unrelated, yet beneficial, microbial species within the rhizosphere and, concomitantly, cause significant yield increases and/or nitrogen sparing effects.

(*emphasis added*) (6:9-13.) "*Concomitantly*" means "a phenomenon that naturally accompanies or follows something." THE OXFORD AMERICAN COLLEGE DICTIONARY 288 (2002). *See*, Ex. 9. Therefore the specification is properly understood to mean that the increase in the numbers of probiotic *Bacillus* species results in significant yield increases and/or nitrogen sparing effects.

The inventor uses other similar defined terms to mean the same thing. With respect to the term "probiotic *Bacillus* microorganisms," the specification sets out:

> In accordance with the present invention, novel fertilizer compositions are presented which improve the effectiveness of probiotic *Bacillus* microorganisms used to enhance plant yields and/or reduce nitrogen requirements.

(*emphasis added*) (7:8-11.)…Similarly, the result of use of the invention including "probiotic *Bacillus* bacteria" is described, as follows:

> When the teachings of the present invention are properly followed they result in the production of advanced technology fertilizer products that contains both organic and inorganic components and a defining content of probiotic *Bacillus* bacteria of high purity and prolonged shelf life. When fertilizer formulations of the present invention are applied to food plants, significant yield enhancements result and reductions in total nitrogen requirements can be achieved.

(*emphasis added*) (7:53-61.) In each case, the invention itself is defined in terms of probiotic *Bacillus* microorganisms and bacteria which enhance plant yield and reduce nitrogen requirements.

Defendants' construction is consistent with extrinsic evidence. Dr. Kloepper testified that he agreed with the Defendants' claim construction and that benefits that could be experienced by probiotic *Bacillus* bacteria would include increased yield and reduced nitrogen requirements as follows:

> Question: In the case of plants or fertilizers with the *Bacillus* – the probiotic *Bacillus* bacteria is applied to the risers, the root zone of the plant, does the probiotic bacteria have a beneficial effect on the plant in the same way the bacteria in yogurt would benefit the human being?
>
> Answer: It does have a benefit on the plant.
>
> Question: And would that benefit be exemplified by increasing yield?
>
> Answer: That would be one of the ways it would be exemplified.
> Question: And another example would be reducing the nitrogen requirements of the plant, right?
>
> Answer: Yes.
>
> Question: And would another benefit be something that we discussed earlier, protecting the plant from something bad happening to it?
>
> Answer: It could, however – see, this gets into – these terms sometimes have a scientific technical meaning, others are more used in a kind of general discussions in society.
>
> Question: Right?
>
> Answer: Probiotic is in that second category. The term – and I'm getting to your question, because your question would also include – would probiotic also include these disease protecting? We have another word that's more commonly used for that, which is biocontrol – biological control. I've – *so that's why to me this proposed terminology here that talks about yield and nitrogen is sufficient. (*Kloepper Dep. Tr. 92:8-93:15.)

Plaintiffs' construction is an attempt to inappropriately broaden the scope of the claim. In their attempt to accomplish this goal, they misconstrue the specification.

For example, at 3:38-41 (cited above) the specification states the invention comprises *at least* one species of probiotic *Bacillus* bacteria that enhances plant yields and reduces nitrogen effects. This does not mean there are other unstated benefits, but rather more clearly that there are other probiotic *Bacillus* bacteria (such as those listed at 9:5-15) that exhibit exactly the same required qualities. The semantic difference between the words "that" and "which" is irrelevant.

As another example, in reference to the specification at 6:9-13, Plaintiffs ignore or misconstrue the word "concomitantly." Plaintiffs understand the specification to require three benefits of probiotic *Bacillus* bacteria. But that is not what the specification says. Three benefits are identified. However, the two benefits required from the definition, namely, yield enhancement and reduction of nitrogen effects, follow from and are included in the first, an increase in numbers of unrelated species.

The specification supports the claim construction of Defendants and does not support the construction of Plaintiffs. Therefore, Defendants request that the Court adopt the claim construction of Defendants in relation to the term "probiotic *Bacillus* bacteria."

In regard to claim terms 15 and 17, Defendants agree to the construction of Plaintiffs to the extent that they differ from the construction of "probiotic *Bacillus* bacteria."

Defendants agree to Plaintiffs' construction of terms nos. 16 and 18.

E. The Yield Terms (Disputed Terms Nos. 20, 23, and 24)

Term	*Plaintiffs*	*Defendants*
20. **yield** '224: 12	The term "yield" means the amount of a plant product.	The amount of food crop harvested
23. **a time sufficient to enhance yield of the plant while reducing nitrogen effect** '224: 12	This term means any amount of time that is enough to increase the "yield" of the plant while reducing the "nitrogen effect" of the fertilizer composition compared to the "nitrogen effect" of a non-fertilizer.	This term means any amount of time that is enough to increase the "yield" of the plant while reducing the "nitrogen effect" of the fertilizer composition.
24. **sufficient amount of a fertilizer composition** '224: 12	This term means any amount of a fertilizer composition that is enough to increase "yield" of the plant without significantly increasing the "nitrogen effect" of the fertilizer composition when compared to the nitrogen effect of a non-fertilizer.	This term means any amount of a fertilizer composition that is enough to increase "yield" of the plant without significantly increasing the "nitrogen effect" of the fertilizer composition.

With respect to the term "yield" (term 20), Defendants' revised construction is quite close to that of Plaintiffs, yet differs in an important aspect.

On the one hand, Defendants' construction of the term for "yield" includes "the amount of food crop harvested." The definition is supported by the specification. Each of the applicable examples, beginning at column 19 in the specification, refer to food crops, vegetables, rice and fruit. (19:21, 20:49, 23:29, 24:7, 24:43) Further, it is generally understood that the term "yield" refers to food crops as noted by Dr. Kloepper in his testimony as follows:

> Question: "… Your testimony to the court will be that the term yield means increasing the amount of food crop harvested per unit area of land, is that right?

Answer: Yes. (Kloepper Dep. Tr. 53:4-8.)

On the other hand, Plaintiffs' definition includes an "amount of plant product." The term "plant product" is not found in the specification anywhere. Further, it does not lend itself to easy understanding. In fact, what is a plant product? Defendants submit that the term "plant product" is vastly overbroad and can incorporate things as farfetched as coal or timber. Clearly, the specification does not support a construction of this breadth.

With respect to the term "time sufficient to enhance yield of the plant while reducing the nitrogen effect" (term 23), Defendants' revised definition now matches Plaintiffs' with the exception of the final phrase "when compared to the nitrogen effect of a non-fertilizer." The final phrase of Plaintiffs' definition is not found in the specification and adds vagueness and confusion to the construction and should not be adopted.

Similarly, Defendants' revised definition of the term "sufficient amount of a fertilizer composition" (term 24) now matches Plaintiffs' with the exception of the final phrase "when compared to the nitrogen effect of a non-fertilizer." This terminology adds complexity to the claim by requiring the comparison with an unknown and undefined quantity, namely the "nitrogen effect of a non-fertilizer." The specification does not support this engrafted definition, and it should not be used to construe the term.

F. Actinomycetes and Nitrogen-Fixing Bacteria (Disputed Terms Nos. 25-27)

Defendants have agreed to the construction of terms nos. 25-27.

G. ATCC Bacteria (Disputed Terms Nos. 8-11)

Term	*Plaintiffs*	*Defendants*
8. ***Bacillus laterosporus* (ATCC PTA-3593)**	*Bacillus* bacteria of the species *laterosporus*, as exemplified by the strain deposited with the American Type Culture	When a particular strain is named in the claims, such as *Bacillus laterosporus* (ATCC PTA-3593), it means that

	Collection with the identification number PTA-3593.	particular strain and not other strains of the same species.
9. ***Bacillus laterosporus* (ATCC PTA-3952)**	*Bacillus* bacteria of the species *laterosporus*, as exemplified by the strain deposited with the American Type Culture Collection with the identification number PTA-3592.	When a particular strain is named in the claims, such as *Bacillus laterosporus* (ATCC PTA-3952), it means that particular strain and no other strains of the same species.
10. ***Bacillus licheniformis* (ATCC PTA-6175)**	*Bacillus* bacteria of the species *licheniformis*, as exemplified by the strain deposited with the American Type Culture Collection with the identification number PTA-6175.	When a particular strain is named in the claims, such as *Bacillus licheniformis* (ATCC PTA-6175), it means that particular strain and not other strains of the same species.
11. ***Bacillus subtilis* (ATCC PTA-6174)**	*Bacillus* bacteria of the species *subtilis*, as exemplified by the strain deposited with the American Type Culture Collection with the identification number PTA-6174.	When a particular strain is named in the claims, such as *Bacillus subtilis* (ATCC PTA-6174), it means that particular strain and not other strains of the same species.

Plaintiffs have withdrawn their infringement contentions for all claims that include claim term nos. 8-11.[6] However, Defendants contend that these terms should be construed as part of the Defendants' invalidity contentions and inequitable conduct allegations.

Defendants contend that these claim terms should be accorded their ordinary and customary meaning. However, in the alternative, the terms should be construed to mean the

[6] The claims that have been withdrawn and include these claim terms are claims 1, 2, 3, 4, 8, 13, 16, and 17 of the '179 Patent and claims 15, 16, 19, and 20 of the '994 Patent. Of the withdrawn claims from the '179 Patent, Claim 1 explicitly identifies the four claim terms and the remaining claims are dependent on Claim 1.

specific strain of bacteria that has been identified by its respective ATCC number and not any other strain of the species of bacteria.

Dated: February 21, 2011.

Respectfully submitted,

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CERTIFICATE OF SERVICE

This is to certify that all known counsel of record who are deemed to have consented to electronic service are being served with a copy of the foregoing Defendants' Joint Responsive Brief on Claim Construction via the Court's CM/ECF system according to E. Dist. Tex. Loc. Ct. R. CV-5(a)(3) on this the 21st day of February, 2011. Any other known counsel of record will be served with a copy of this document in the manner as noted below.

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